LAND APPLICATION OF BIOSOLIDS
BOB CHAMBERS

CU 14 (FIELDS 1-6)
CULPEPER COUNTY, VIRGINIA
JUNE 2015

10647 Tidewater Trail
Champlain, VA 22438-2017
www.synagro.com

SYNAGRO

JULY 25, 2016

Mr. John Thompson
Department of Environmental Quality
Northern Virginia Regional Office
13901 Crown Court
Woodbridge, Virginia 22193

Dear Mr. Thompson,

Transmitted herein for your consideration is land application site for Bob Chambers (designated as CU 14, fields 1-6), located in Culpeper County, Virginia. This submission contains strictly site specific information. Please refer to the operations and maintenance manual submitted under separate cover for all non-site specific information.

Do not hesitate to contact me at (804) 443-2170 should you have any questions or require additional information.

Sincerely,

CMWhiteside

Carolanne M. Whiteside

Technical Services Coordinator

SYNAGRO

FIELD SUMMARY SHEET

Bob Chambers **CU 14**

SYNAGRO FIELD #	GROSS ACRES	NET ACRES	FSA TRACT #	FIELD TYPE	OWNER
14-01	45.7	45.7		Agriculture	H L Farm Corp
14-02	66.4	66.4		Agriculture	H L Farm Corp
14-03	42.7	42.7		Agriculture	H L Farm Corp
14-04	35.0	35.0		Agriculture	H L Farm Corp
14-05	53.3	53.3		Agriculture	H L Farm Corp
14-06	19.0	19.0		Agriculture	H L Farm Corp
TOTALS:	262.1	262.1			

SYNAGRO

A Residuals Management Company

VIRGINIA REQUEST AND CONSENT FOR BIOSOLIDS

FARM OPERATOR: Bob Chambers PHONE: (540) 226 9199

ADDRESS: 33285 Mason Rd Locust Grove VA 22508

FARM LOCATION: Newbys Shop & Thoms Rd, Elkwood VA

FSA TRACT #:

TOTAL ACRES: COUNTY: Culpeper

CROPS:

1. I agree to be responsible for adhering to the following conditions, where applicable:
   a. The soil pH will be adjusted ≥6.0 when biosolids are applied. (This may be accomplished through the application of lime-treated biosolids).
   b. Do not graze animals on the land for 30 days after the application of biosolids. In addition, animals intended for dairy production should not be allowed to graze on the land or be fed chopped foliage for 60 days after the application of biosolids. Meat-producing livestock should not be fed chopped foliage for 30 days after the application of biosolids.
   c. Food crops for direct human consumption with harvested parts below the surface of the land shall not be harvested for 14 months after the application of biosolids.
   d. Food crops for direct human consumption with harvested parts below the surface of the land shall not be harvested for 20 months after the application of biosolids when the biosolids remain on the land surface ≥ 4 months prior to incorporation into the soil or 38 months when the biosolids remain on the land surface < 4 months prior to incorporation.
   e. Food crops, feed crops and fiber crops shall not be harvested for 30 days after application of biosolids.
   f. Public access to land with a low potential for public exposure (land the public uses infrequently including but not limited to agricultural land and forests) shall be restricted for 30 days after application of biosolids. Public access to land with a high potential for public exposure (land the public uses frequently including but not limited to a public contact site such as parks, playgrounds and golf courses) shall be restricted for 1 year. No biosolids-amended soil shall be excavated or removed from the site for 30 days following the biosolids application unless adequate provisions are made to prevent public exposure to soils, dusts or aerosols.
   g. Turf grown on land where biosolids are applied shall not be harvested for one year after application of biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.
   h. Supplemental commercial fertilizer or manure applications should be coordinated with the biosolids applications such that the total crop needs fro nutrients are not exceeded as identified on the nutrient balance sheet or the nutrient management plan approved by the Virginia Department of Conservation and Recreation to be supplied to the farm operator by Synagro at the time of application of biosolids to a specific permitted site.
   i. Tobacco, because it has been shown to accumulate cadmium, should not be grown for three years following the application of biosolids-borne cadmium equal to or exceeding 0.45 lbs/acre.
2. I understand that this transaction is not contemplated by the parties to be a sale of goods, and that Synagro is willing to provide to me without charge the service of land applying biosolids which have been approved by the appropriate regulatory agencies for land application.
3. I understand that successful crop production depends on many variables, such as weather, soil conditions and specific farming practices and that while Synagro has experience with land application of biosolids, the responsibility for properly accommodating agricultural practices to biosolids utilization are solely mine. I have also read and understand the "Important Information About Using Biosolids as a Fertilizer" which is on the reverse side and incorporated by reference in this Request and Consent.

OPERATOR'S SIGNATURE — DATE: June 1, 2015

Synagro * 10647 Tidewater Trail * Champlain, VA 22438 * 804.443.2170

IMPORTANT INFORMATION ABOUT USING BIOSOLIDS AS A FERTILIZER

Biosolids Generation

Biosolids are the accumulated, treated solids separated from water during the treatment of wastewater by public and private wastewater treatment plants (Generators). The Generator is responsible for supplying biosolids that are suitable for land application under state and federal regulations.

Benefits of Biosolids

Biosolids provide nitrogen in a form that can be taken up by plants during their growth cycle. Biosolids also add phosphorus to the soil. If lime is added to biosolids, the biosolids will have the added benefit of a liming agent. Biosolids contain primary, secondary and micronutrients that can be used by plants. Biosolids are primarily an organic material; when added to soil, they improve water and nutrient retention, reduce erosion potential and improve soil structure.

The Permitting Process

Once the farm operator requests biosolids, a Synagro representative initially evaluates the farm for truck access and field conditions. If the farm is found to be suitable and the Request for Biosolids and the Consent for Biosolids forms are signed, Synagro will collect soil samples and have them analyzed by an independent laboratory.

Synagro will then apply for any federal, state or local permits required for biosolids application. The permits will specifically identify the fields to which biosolids will be applied and will be issued to Synagro or the Generator.

After the permits are obtained (a process that may take several months or more) Synagro will apply biosolids, as they become available, to the fields. Availability of biosolids may vary because of weather conditions, contractual arrangements with biosolids generators and other factors. Although the company cannot guarantee biosolids application because of factors beyond its control, Synagro will use its best efforts to apply biosolids to the permitted fields.

The conditions outlined in the permit will apply to any and all biosolids applications made by Synagro. Synagro will not e responsible for biosolids application made by any other entity.

Periodic visits to the land application site(s) by federal, state and local regulatory staff and Synagro representatives may occur for the purpose of permitting the site, inspecting the site, applying biosolids, obtaining samples at the site and testing. Proper identification will be provided upon request.

Agronomic Considerations

Tractor-trailer units are used to deliver biosolids to the fields approved for biosolids applications. Soil compaction may occur on the travel areas used by the trucks and in areas where biosolids are unloaded for transfer to the applicator vehicle.

Since some biosolids contain lime, it is important to recognize any increase in soil pH where biosolids have been applied and exercise care in using certain herbicides. If considering the use of a sulfonylurea herbicide, particular attention should be paid to any label restrictions. High soil pH and dry weather may slow decomposition of these chemicals, resulting in carryover. For soils with low manganese levels, increased soil pH from lime addition (alone or in lime treated biosolids) may reduce manganese availability and thereby potentially reduce crop yields.

In planning a herbicide program, it should be noted that seeds may sometimes survive the biosolids treatment process – for example, tomato seeds. Also, the organic matter additions from biosolids application (organic matter tends to tie up certain herbicides) may require increased herbicide application rates. Consult your extension agent or chemical representative for a specific recommendation.

Biosolids contain salts. Biosolids applications alone rarely cause salt problems. However, if combined with other significant salt-increasing factors, such as drought, excessive soil compaction, saline irrigation water and salt-contain fertilizers, salts may reach levels that could negatively affect germination and growth of some crops.

While odors from biosolids applications are not usually significant, and typically less than that from livestock manure, it is possible that an odor from the decomposition of organic matter may be noticed. It this occurs, it generally disappears in a short time.

Since biosolids provide nitrogen that will be released slowly throughout the growing season with diminishing carry-over in subsequent years, it is important to reduce the use of nitrogen and other fertilizers to appropriate levels.

VIRGINIA POLLUTION ABATEMENT PERMIT APPLICATION
FORM D: MUNICIPAL EFFLUENT AND BIOSOLIDS

PART D-VI: LAND APPLICATION AGREEMENT - BIOSOLIDS AND INDUSTRIAL RESIDUALS

A. This land application agreement is made on _____ between HL Farm Corp referred to here as "Landowner", and Synagro, referred to here as the "Permittee". This agreement remains in effect until it is terminated in writing by either party or, with respect to those parcels that are retained by the Landowner in the event of a sale of one or more parcels, until ownership of all parcels changes. If ownership of individual parcels identified in this agreement changes, those parcels for which ownership has changed will no longer be authorized to receive biosolids or industrial residuals under this agreement.

Landowner:
The Landowner is the owner of record of the real property located in Culpeper Co., Virginia, which includes the agricultural, silvicultural or reclamation sites identified below in Table 1 and identified on the tax map(s) attached as Exhibit A.

Table 1.: Parcels authorized to receive biosolids, water treatment residuals or other industrial sludges

Tax Parcel ID	Tax Parcel ID	Tax Parcel ID	Tax Parcel ID
TM 45 P2			
TM 45 P3			
TM 45 P21			

☐ Additional parcels containing Land Application Sites are identified on Supplement A (check if applicable)

Check one:
☒ The Landowner is the sole owner of the properties identified herein.
☐ The Landowner is one of multiple owners of the properties identified herein.

In the event that the Landowner sells or transfers all or part of the property to which biosolids have been applied within 38 months of the latest date of biosolids application, the Landowner shall:

1. Notify the purchaser or transferee of the applicable public access and crop management restrictions no later than the date of the property transfer; and
2. Notify the Permittee of the sale within two weeks following property transfer.

The Landowner has no other agreements for land application on the fields identified herein. The Landowner will notify the Permittee immediately if conditions change such that the fields are no longer available to the Permittee for application or any part of this agreement becomes invalid or the information herein contained becomes incorrect.

The Landowner hereby grants permission to the Permittee to land apply residuals as specified below, on the agricultural sites identified above and in Exhibit A. The Landowner also grants permission for DEQ staff to conduct inspections on the land identified above, before, during or after land application of permitted residuals for the purpose of determining compliance with regulatory requirements applicable to such application.

Class B biosolids	Water treatment residuals	Food processing waste	Other industrial sludges
X Yes ☐ No	X Yes ☐ No	X Yes ☐ No	X Yes ☐ No

HL Farm Corp. Mgr	JC Spring	9100 Chestnut Av. Newport News VA 23607
Landowner – Printed Name, Title	Signature	Mailing Address

Permittee:
Synagro, the Permittee, agrees to apply biosolids and/or industrial residuals on the Landowner's land in the manner authorized by the VPA Permit Regulation and in amounts not to exceed the rates identified in the nutrient management plan prepared for each land application field by a person certified in accordance with §10.1-104.2 of the Code of Virginia.

The Permittee agrees to notify the Landowner or the Landowner's designee of the proposed schedule for land application and specifically prior to any particular application to the Landowner's land. Notice shall include the source of residuals to be applied.

X I reviewed the document(s) assigning signatory authority to the person signing for landowner above. I will make a copy of this document(s) available to DEQ for review upon request. (Do not check this box if the landowner signs this agreement)

Jeff Douthit	Jeff Douthit	10647 Tidewater Trail Champlain, VA 22438
Permittee – Authorized Representative Printed Name	Signature	Mailing Address

CU14

VIRGINIA POLLUTION ABATEMENT PERMIT APPLICATION: PART D-VI LAND APPLICATION AGREEMENT

Permittee: Synagro County or City: Culpeper

Landowner: HL Farm Corp

Landowner Site Management Requirements:

I, the Landowner, I have received a DEQ Biosolids Fact Sheet that includes information regarding regulations governing the land application of biosolids, the components of biosolids and proper handling and land application of biosolids.

I have also been expressly advised by the Permittee that the site management requirements and site access restrictions identified below must be complied with after biosolids have been applied on my property in order to protect public health, and that I am responsible for the implementation of these practices.

I agree to implement the following site management practices at each site under my ownership following the land application of biosolids at the site:

1. Notification Signs: I will not remove any signs posted by the Permittee for the purpose of identifying my field as a biosolids land application site, unless requested by the Permittee, until at least 30 days after land application at that site is completed.

2. Public Access
   a. Public access to land with a high potential for public exposure shall be restricted for at least one year following any application of biosolids.
   b. Public access to land with a low potential for public exposure shall be restricted for at least 30 days following any application of biosolids. No biosolids amended soil shall be excavated or removed from the site during this same period of time unless adequate provisions are made to prevent public exposure to soil, dusts or aerosols;
   c. Turf grown on land where biosolids are applied shall not be harvested for one year after application of biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by DEQ.

3. Crop Restrictions:
   a. Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after the application of biosolids.
   b. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after the application of biosolids when the biosolids remain on the land surface for a time period of four (4) or more months prior to incorporation into the soil,
   c. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months when the biosolids remain on the land surface for a time period of less than four (4) months prior to incorporation.
   d. Other food crops and fiber crops shall not be harvested for 30 days after the application of biosolids;
   e. Feed crops shall not be harvested for 30 days after the application of biosolids (60 days if fed to lactating dairy animals).

4. Livestock Access Restrictions:
   Following biosolids application to pasture or hayland sites:
   a. Meat producing livestock shall not be grazed for 30 days,
   b. Lactating dairy animals shall not be grazed for a minimum of 60 days.
   c. Other animals shall be restricted from grazing for 30 days;

5. Supplemental commercial fertilizer or manure applications will be coordinated with the biosolids and industrial residuals applications such that the total crop needs for nutrients are not exceeded as identified in the nutrient management plan developed by a person certified in accordance with §10.1-104.2 of the Code of Virginia;

6. Tobacco, because it has been shown to accumulate cadmium, should not be grown on the Landowner's land for three years following the application of biosolids or industrial residuals which bear cadmium equal to or exceeding 0.45 pounds/acre (0.5 kilograms/hectare).

Landowner's Signature 7/21/16 Date

C014

TAX ID LANDOWNER IDENTIFICATION SHEET

Landowner	Field Number	Tax ID
H L Farm Corp	14-01	45-2
H L Farm Corp	14-02	45-3
H L Farm Corp	14-03	45-3
H L Farm Corp	14-04	45-21
H L Farm Corp	14-05	45-21
H L Farm Corp	14-06	45-21

Field Number	Latitude (North)	Longitude (West)
14-01	38.492°	-77.831°
14-02	38.488°	-77.833°
14-03	38.489°	-77.828°
14-04	38.490°	-77.823°
14-05	38.488°	-77.821°
14-06	38.490°	-77.817°

Haul Route:

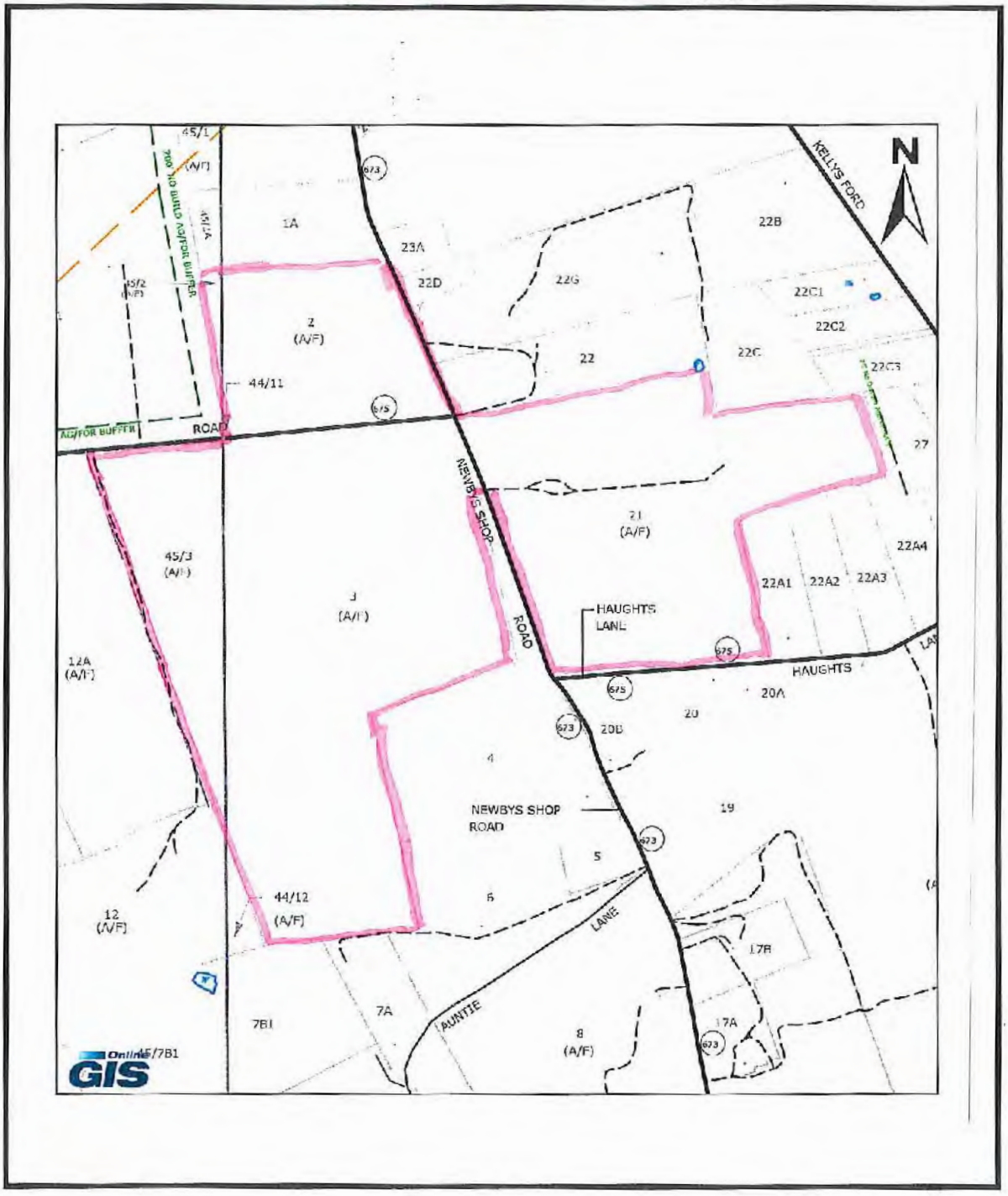
The Location maps in conjunction with the above latitude and longitude coordinates are a route planning tool meant to be a guide to indicate suggested haul routes for various preferences: to include but not limited to all federal, state, and local granted STAA access routes.

FIELDS WITH DEQ CONTROL ID NUMBERS

Field	Permit	Control ID Number
14-01	VPA00057	51047-00370-0000
14-02	VPA00057	51047-00371-0000
14-03	VPA00057	51047-00372-0000
14-04	VPA00057	51047-00373-0000
14-05	VPA00057	51047-00374-0000
14-06	VPA00057	51047-00375-0000

SYNAGRO

Bob Chambers
CU 14
Fields 1-6



TAX MAP

Disclaimer: Information shown on these maps are derived from public records that are constantly undergoing change and do not replace a site survey, and is not warranted for content or accuracy. The County does not guarantee the positional or thematic accuracy of the GIS data. The GIS data or cartographic digital files are not a legal representation of any of the features in which it depicts, and disclaims any assumption of the legal status of which it represents.

Farm Summary Report

Plan: **New Plan** **Summer, 2015 - Summer, 2016**

Farm Name: **CU14**
Location: Culpeper
Specialist: Jeffery R Douthit
N-based Acres: 263.8
P-based Acres: 0.0

Tract Name: **CU14**
FSA Number: 0
Location: Culpeper

Field Name: **1**
Total Acres: 45.70 Usable Acres: 45.70
FSA Number: 0
Tract: CU14
Location: Culpeper
Slope Class: A Hydrologic Group: C

Riparian buffer width: 0 ft
Distance to stream: 0 ft

P-Index Summary
N-based
Phosphorus Limit method: Phosphorus Environmental Threshold (PET) method

Soil Test Results:

DATE	PH	P	K	Lab
[NO TEST]				

Soils:

PERCENT	SYMBOL	SOIL SERIES
21	16A	Dulles Nestoria
36	9A	Clover Penn
43	45A	Nestoria Penn

Field Warnings:

Field Name: 2
Total Acres: 65.70 Usable Acres: 65.70
FSA Number: 0
Tract: CU14
Location: Culpeper
Slope Class: A Hydrologic Group: C

Riparian buffer width: 0 ft
Distance to stream: 0 ft

P-Index Summary
N-based
Phosphorus Limit method: Phosphorus Environmental Threshold (PET) method

Soil Test Results:

DATE	PH	P	K	Lab
[NO TEST]				

Soils:

PERCENT	SYMBOL	SOIL SERIES
83	45A	Nestoria Penn
17	16A	Dulles Nestoria

Field Warnings:
Environmentally Sensitive Soils due to:

Shallow soils less than 41 inches deep likely to be located over fractured or limestone bedrock

Field Name: 3
Total Acres: 44.20 Usable Acres: 44.20
FSA Number: 0
Tract: CU14
Location: Culpeper
Slope Class: A Hydrologic Group: C

Riparian buffer width: 0 ft
Distance to stream: 0 ft

P-Index Summary
N-based
Phosphorus Limit method: Phosphorus Environmental Threshold (PET) method

Soil Test Results:

DATE	PH	P	K	Lab
[NO TEST]				

Soils:

PERCENT	SYMBOL	SOIL SERIES
24	16A	Dulles Nestoria
76	45A	Nestoria Penn

Field Warnings:
Environmentally Sensitive Soils due to:

Shallow soils less than 41 inches deep likely to be located over fractured or limestone bedrock

Field Name: 4
Total Acres: 37.30 Usable Acres: 37.30
FSA Number: 0
Tract: CU14
Location: Culpeper
Slope Class: A Hydrologic Group: C

Riparian buffer width: 0 ft
Distance to stream: 0 ft

P-Index Summary
N-based
Phosphorus Limit method: Phosphorus Environmental Threshold (PET) method

Soil Test Results:

DATE	PH	P	K	Lab
[NO TEST]				

Soils:

PERCENT	SYMBOL	SOIL SERIES
63	45A	Nestoria Penn
22	9A	Clover Penn
15	16A	Dulles Nestoria

Field Warnings:

Field Name: 5
Total Acres: 52.70 Usable Acres: 52.70
FSA Number: 0
Tract: CU14
Location: Culpeper
Slope Class: A Hydrologic Group: C

Riparian buffer width: 0 ft
Distance to stream: 0 ft

P-Index Summary
N-based
Phosphorus Limit method: Phosphorus Environmental Threshold (PET) method

Soil Test Results:

DATE	PH	P	K	Lab
[NO TEST]				

Soils:

PERCENT	SYMBOL	SOIL SERIES
47	16A	Dulles Nestoria
2	20A	Elbert
6	45A	Nestoria Penn
45	51A	Kelly Sycoline

Field Warnings:

Field Name: 6

Total Acres:	18.20	Usable Acres:	18.20
FSA Number:	0		
Tract:	CU14		
Location:		Culpeper	
Slope Class:	A	Hydrologic Group:	C

Riparian buffer width: 0 ft
Distance to stream: 0 ft

P-Index Summary
N-based
Phosphorus Limit method: Phosphorus Environmental Threshold (PET) method

Soil Test Results:

DATE	PH	P	K	Lab
[NO TEST]				

Soils:

PERCENT	SYMBOL	SOIL SERIES
50	45A	Nestoria Penn
27	16A	Dulles Nestoria
23	9A	Clover Penn

Field Warnings:

ENVIRONMENTALLY SENSITIVE AREAS

Field	Reason for Sensitive Area
14-01	High Water Table (Map Unit 16A - 21%) Shallow Soils (Map Unit 45A - 43%)
14-02	High Water Table (Map Unit 16A - 17#) Shallow Soils (Map Unit 45A - 83%)
14-03	High Water Table (Map Unit 16A - 24%) Shallow Soils (Map Unit 45A - 76%)
14-04	High Water Table (Map Unit 16A - 15%) Shallow Soils (Map Unit 45A - 63%)
14-05	High Water Table (Map Units 16A, 20A, 51A - 94%) Shallow Soils (Map Unit 45A - 6%)
14-06	High Water Table (Map Unit 16A - 27%) Shallow Soils (Map Unit 45A - 50%)

Culpeper County Soils that are Environmentally Sensitive

Soil Map Unit	Series Name	Time of year		Environmental
		High Water	Flooded	
3D, 3E	Blocktown-Yellowbottom			Shallow
5B	Catoctin-Fletcherville			Shallow
6C, 6B	Catoctin-Alanthus			Shallow
7E	Catoctin-Alanthus (Rock)			Shallow
10A	Codorus-Hatboro	Nov – April	Dec – April	
11B	Codorus-Meadowville	Nov – April		
12A	Codorus	Nov – April	Dec – April	
13A	Comus		Jan – May	
15A	Dulles-Kinkora	Dec – April		
16A, 16B	Dulles-Nestoria	Nov – March		
20A	Elbert	Nov – March		
30C, 31D, 31E	Griffinsburg-Edgemont			Shallow
38A, 38B	Jackland-Haymarket	Dec – April		
39A, 39B	Jackland-Haymarket	Dec – April		
51A	Sycoline-Kelly	Nov – May		

Map Legend

House/Dwelling with a well
- 200' buffer-dwelling (with conditions for reduction);
- 100' buffer-well

Rock Outcrop
- 25' buffer

Limestone Outcrop / Closed Sinkholes
- 50' buffer

Well
- 100' buffer

Lake/Pond
- 35' w/vegetative buffer; 100' without vegetative buffer

Slope which exceeds 15%

"PAS" - Publicly Accessible Site
- 200' buffer

Intermittent Stream
- 35' w/vegetative buffer; 100' without vegetative buffer

Stream/River
- 35' w/vegetative buffer; 100' without vegetative buffer

Agricultural/Drainage Ditch
- 10' buffer

Field Boundary

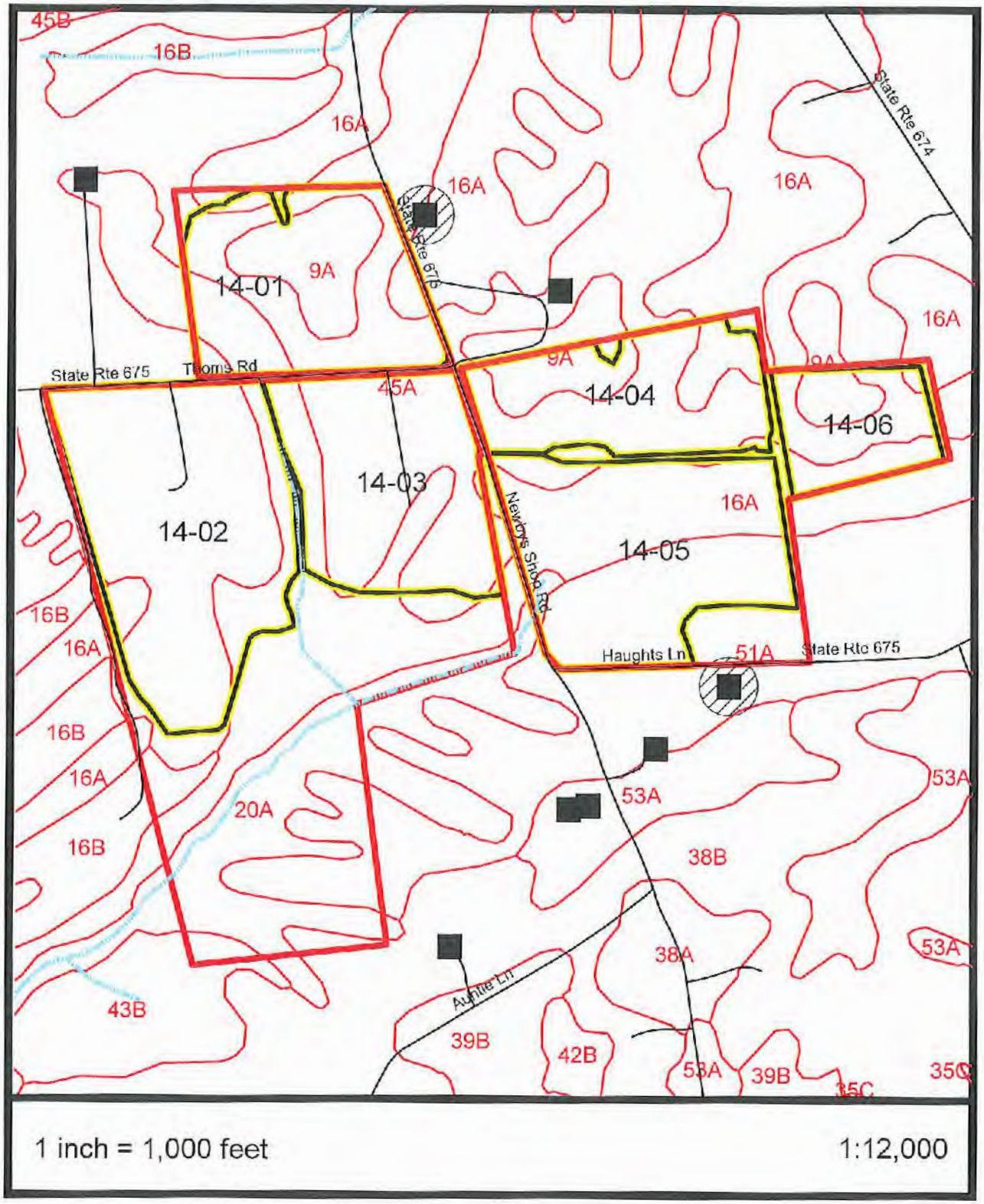
Property Line
- 100' buffer unless waiver issued

SYNAGRO

Updated Feb. 2015

SYNAGRO

Bob Chambers
CU14
Fields 1-6



1 inch = 1,000 feet

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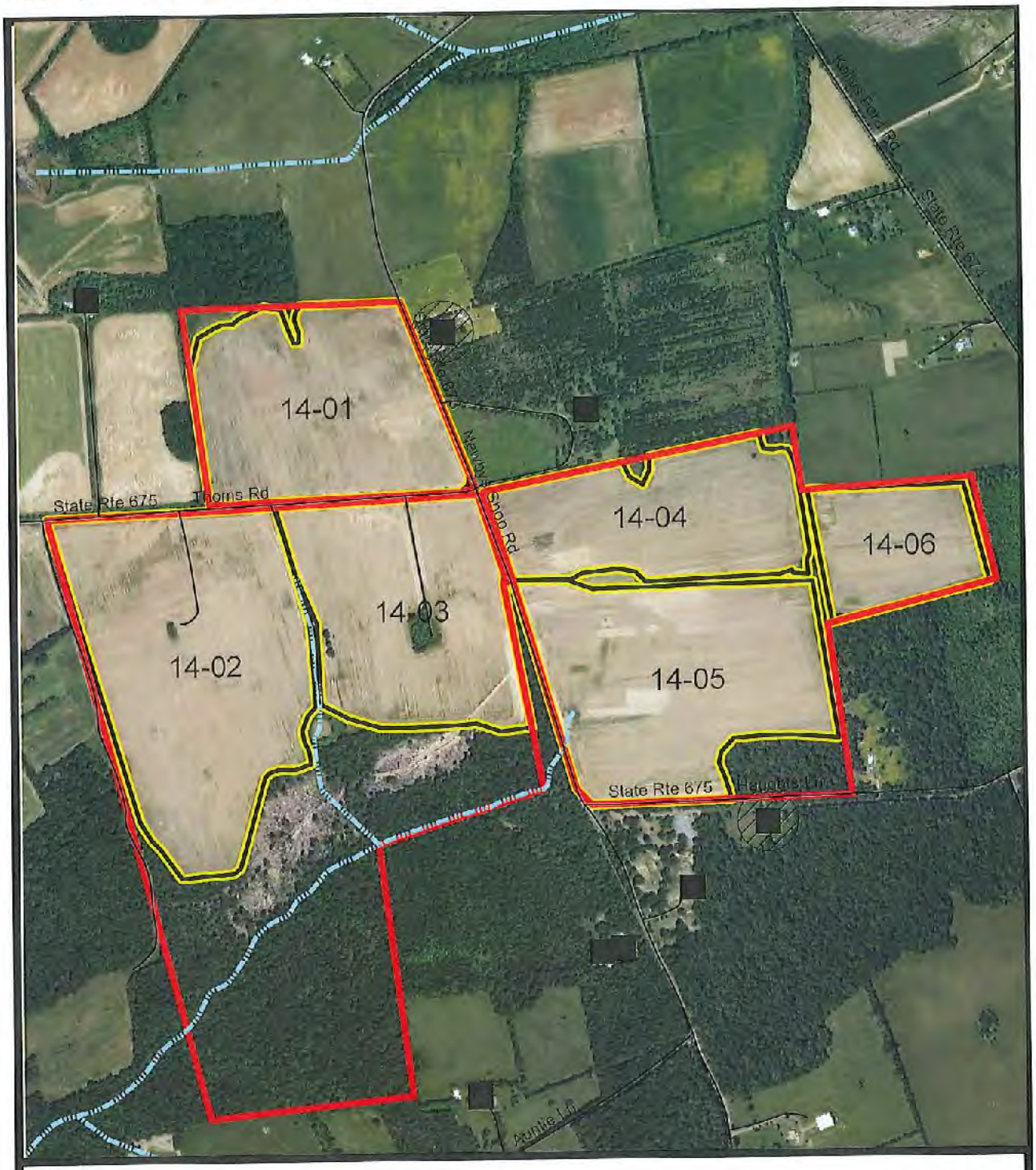
SOIL MAP

N

SYNAGRO

Bob Chambers
CU14
Fields 1-6



1 inch = 1,000 feet

1:12,000

AERIAL MAP

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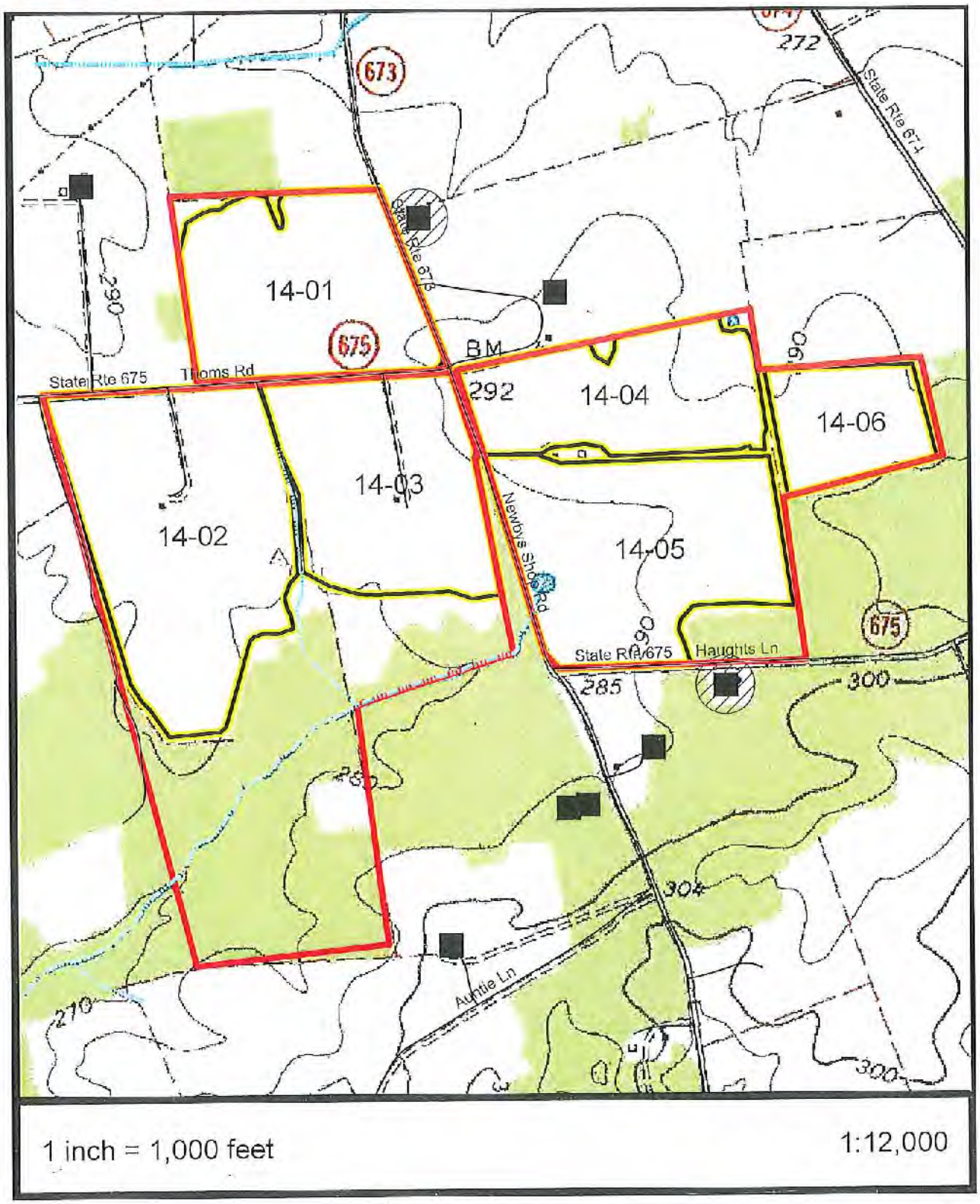
SYNAGRO

Bob Chambers
CU14
Fields 1-6



1 inch = 1,000 feet

1:12,000

FIELD	ACRES
14-01	45.7
14-02	66.4
14-03	42.7

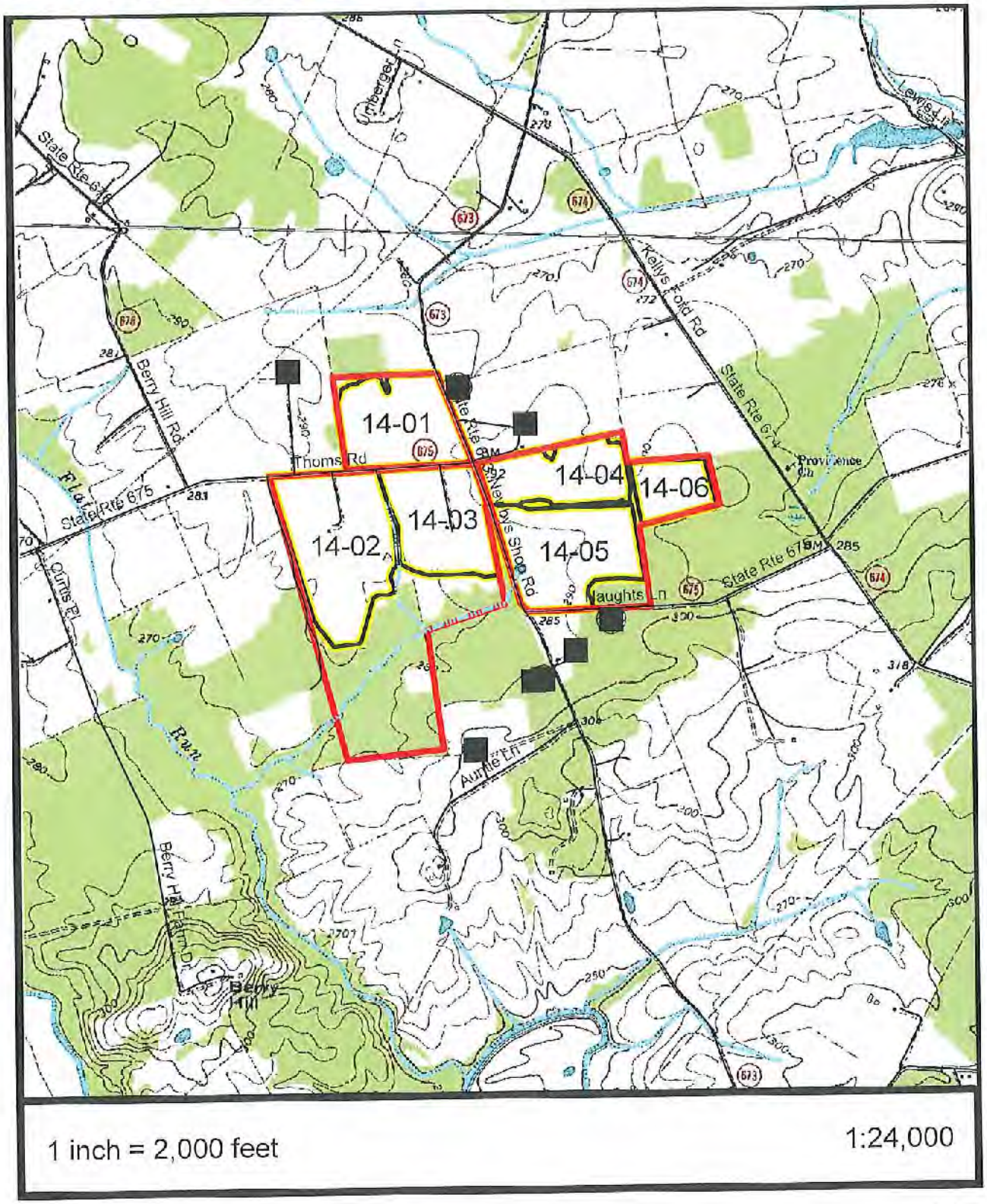
TOPO MAP

FIELD	ACRES
14-04	35.0
14-05	53.3
14-06	19.0

N

SYNAGRO

Bob Chambers
CU14
Fields 1-6



TOPO MAP

N

SYNAGRO

Bob Chambers
CU14
Fields 1-6

1 inch = 4,167 feet

1:50,000

LOCATION MAP

N